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Economic Reforms for Global Competitiveness

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Denis Ushakov

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Economic Reforms for Global Competitiveness

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Chapter 16

Regional Competitiveness and National Economic Growth: Actual Priorities for Indonesian Reforms

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ABSTRACT

Indonesia is a country with a notable economic inequality both across its provinces and districts. This inequality can be attributed to the disparities in access to development. In this paper, the effects of regional competitiveness and economic reforms on economic growth is studied. Regional competitiveness factors include infrastructure pillar, health and education pillar, and labor market efficiency pillar. The data come from the Indonesia Database for Policy and Economic Research (INDO-DAPOER) of the World Bank for the year 2010. The results of the study show that the percentage of households with electricity, the percentage of births attended by skilled health worker, the net enrollment ratio for primary education, the number of people employed, and the total grants statistically and significantly influence regional economic growth positively. Indonesia is to reduce inequality in regional competitiveness and improve the total grants distribution in order to promote regional economic growth equality in the country.

INTRODUCTION

The rapid changes in world economic setting toward trade and capital market liberalization have pushed national governments to take actions in order to participate and survive in global markets as well as to improve macroeconomic performance and to enhance people's welfare. Competitiveness development and economic reforms are among these actions. For example, in 1959, Spain stimulated the Liberalization and Stabilization Plan economic reforms to improve its growth performance (De La Escosura et al., 2011). Meanwhile, China began basically successful economic reforms toward a market-oriented

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economy in 1978 (Chow, 2004). Further, India initiated a number of liberalizing measures in 1991 (Klein & Palanivel, 2000) and Bangladesh introduced wide-ranging economic reforms since the early 1990s that had contributed to its improved economic performance (Mahmud et al. 2008).

In term of competitiveness, it is defined through a multidiscipline economic theory approach in economic geography and regional economy field. Many studies on competitiveness have been written by Michael Porter (1990, 1995) and Paul Krugman (1994, 1996). Further, some papers on competitiveness were written by other authors. A regional competitiveness is closely related to economic geography and regional economy. Michael Porter has emphasized the importance of geographical location. In his model, called “diamond”, Porter emphasized geographical concentration of business that enables productivity, innovation, and export. After his theory, some authors conducted empirical research to identify problems that resulted on economic and geographical interconnection. Geographical interconnection can be implemented in accelerating economic development in Indonesia since Indonesia is a country with the largest number of islands in the world.

According to Global Competitiveness Report (2014-2015) decision makers, business people, and population increasingly are required to know that economic growth has to be balanced by providing opportunity and benefit for all population segments and environmental safety (Schwab & Sala-i-Martin, 2014). It can be achieved through competitiveness development, that measured by the Global Competitiveness Index with three sub-indices and 12 pillars: (i) basic requirements, (ii) efficiency enhancers, and (iii) innovation and sophistication factors. Basic requirements include four pillars: (i) institutions, (ii) infrastructure, (iii) macroeconomic environment, and (iv) health and primary education. Efficiency enhancers consist of six pillars: (i) higher education and training, (ii) goods market efficiency, (iii) labor market efficiency, (iv) financial market development, (v) technological readiness, and (v) market size. Innovation and sophistication factors have two pillars: (i) business sophistication and (ii) innovation.

The impacts of competitiveness and economic reforms on economic growth have been deeply considered (e.g. Hämmäläinen, 2003; Korez-Vide & Tominc, 2016; Bashar & Khan, 2012; Klein & Palanivel, 2000). Hämmäläinen’s studies in 22 OECD countries using data in the 1980s and 1990s concluded that competitiveness, governances’ efficiency and growth-orientation as measures, has significant contributions to economic success. Meanwhile, Korez-Vide and Tominc (2016) found positive relationship between the Global Competitiveness Index scores’s growth rate and GDP per capita growth in Central and Eastern Europe member states of the European Union. Further, Bashar and Khan (2012) discovered that long-run economic growth in Bangladesh is also explained by financial and capital account liberalization. Furthermore, Klein and Palanivel (2000) observed that economic reforms in India had favorable effects on its economic growth that grew to 6.5% per year in the second half of the 1990s and has placed India among the world’s best performing countries. Does competitiveness development and economic reforms affect economic growth in Indonesia?

Indonesia has experienced significant competitiveness development since its independence. The Global Competitiveness Report 2014-2015 (Schwab & Sala-i-Martin, 2014) reported that Indonesia ranked at the 34th position among 144 countries (Switzerland is the first and Guinea is the last one). In the Southeast region, Indonesia is the fourth best in competitiveness development after Singapore (the 2nd), Malaysia (the 20th), and Thailand (the 31st). Also we can note that Indonesia ranked at the 46th by basic requirements and efficiency enhancers and the 30th by innovation and sophistication factors.

However, at international level, Indonesia is a country that still needs attention on competitiveness development. For example, Indonesia's electricity supply quality ranked at 84th position (here and after among 144 countries in the world), 12.8% of female aged 15 and above borrowed money for education, by percentage of women in the labor force Indonesia ranked at 112th position (Schwab and Sala-i-Martin 2014). In term of educational attainment, only 7.4% of Indonesian population aged 25 and above completed Bachelor's or equivalent (7.5% for males and 7.3% for females).

Indonesia's economy grew up for 7% (on average) in 1968-1981 due to the oil price increase. However, the annual growth depreciated to 4.5% in 1981-1988 due to the oil price decline and high level of regulation. In the late 1980s the government initiated a range of economic reforms including deregulation of financial sector and managed devaluation of Indonesia's currency (rupiah, Rp.) to boost national export competitiveness. This economic reform was successful and stimulated Indonesia's economic growth back to 7% in 1989-1997. Asian financial crisis in 1997 had serious impact on Indonesia's economy - GDP reduced by 13.1% in 1998 and got 0.8% growth only in 1999.

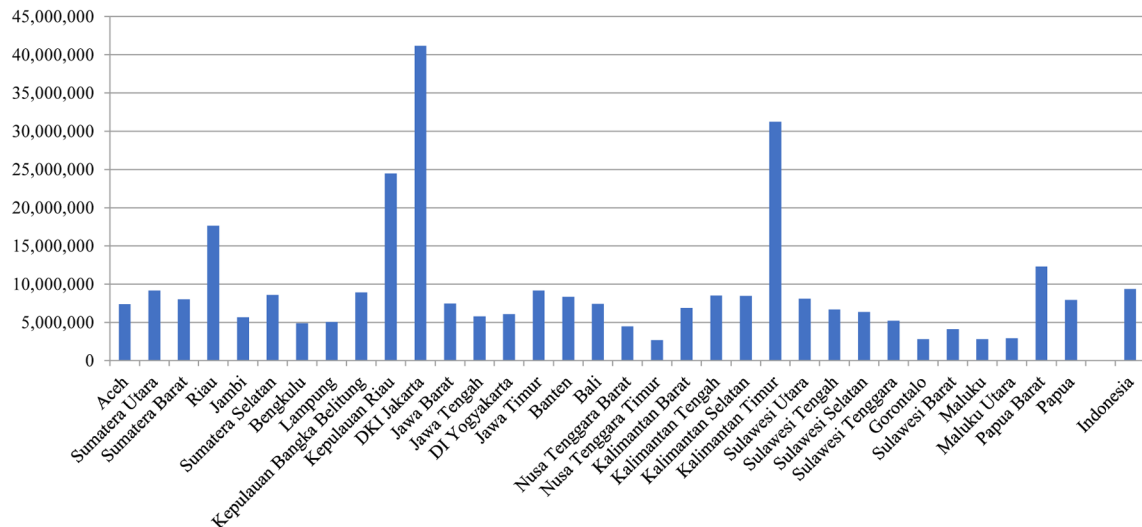
During this crisis period, the government of Indonesia started decentralization by issuing the Law No. 22 of 1999 on Regional Government and Law No. 25 of 1999 on Revenue Sharing between Central and Regional Government (authorities). The Law stipulates central government grants as sources of regional revenue. Before regional autonomy announcement the distribution of these grants was based on the number of regional population. This had caused the situation when some provinces, especially natural resources producers, such as Papua, did not receive significant support because of small local population. During centralized development before the 2000s, provinces with large population in Java enjoyed most the development because 60% of the country population lives in this island. After the regional autonomy, the distribution of grants based on the need of regional governments and regional economic potential and thus allows the Outer Java provinces to increase benefit from national development strategy. After decentralization period, Indonesia's economy grew high around 6% in 2000-2010.

Indonesia's economy is the largest in the Southeast Asia region (en.wikipedia.org). It is one of the world's emerging market economies. As a member of G-20 countries, Indonesia is categorized as a newly industrialized. In addition, Indonesia is the 16th biggest in term of nominal gross domestic product (GDP) and the 8th greatest in term of GDP (purchasing power parity). However, economic development achievement varies greatly across provinces and districts in Indonesia. As it can be seen from Figure 1, in 2010, the Gross Regional Domestic Product (GRDP) at 2000 constant price per capita was lowest in East Nusa Tenggara Province (Rp.2,678,754 or USD206) and highest in the capital of the country, DKI Jakarta province (Rp.41,177,270 or USD3,167), more than 15 times bigger. Disparity across districts is even deeper. In 2010, the GRDP at 2000 constant price per capita was Rp.1.641.333 (USD126) in Sumba Tengah Regency in East Nusa Tenggara Province to a highest of Rp.113,912,307 (USD8,762) in Central Jakarta City in DKI Jakarta Province. In general, districts in the eastern part of Indonesia are lagged in economic development achievement than districts in the western and central part of Indonesia.

What causes the high inequality across districts in Indonesia? Previous studies show that the economic structure, population age structure, investment, family planning program, gender development, and other general and social factors are significant determinants (e.g. Samosir et al., 2008; Rajagukguk et al., 2015). Based on the global competitiveness index framework, the purpose of this chapter is to investigate the impacts of competitiveness development and economic reforms on regional economic growth in Indonesia, focusing on the effects of infrastructure pillar, health and primary education pillar, labor market efficiency pillar, and the total grants from the central government to regional government.

Figure 1. Gross regional domestic product at 2000 constant price per capita by province, Indonesia, 2010, Rp.

Source: Statistics Indonesia, Badan Pusat Statistik, n.d.; authors' own calculation



COMPETITIVENESS DEVELOPMENT IN INDONESIA

Indonesia is located in the Southeast Asia Region. It is the largest island country in the world with more than 17,000 islands and longest shoreline. There are five big islands in Indonesia: Sumatera, Jawa (Java), Kalimantan (Borneo), Sulawesi (Celebes), and Papua (western part of New Guinea). The total area of Indonesia is 1.9 million km². In addition, Indonesia is situated on the boundaries of the Pacific, Eurasian and Australian tectonic plates that cause large number of volcanoes and regular earthquakes in the country. Culturally, Indonesia is a diverse country with about 300 different native ethnic groups and more than 700 languages and dialects which are united under the national motto “Unity in Diversity.”

Indonesia’s population grew from 119.2 million in 1971 to 237.6 million people in 2010 (Statistics Indonesia, 2011c), making Indonesia the fourth largest population in the world, after China, India, and the United States. The population growth declined notably from 2.33% per annum in 1971-1980 to 1.49% per annum in 1990-2010. This decline has been attributed to the success of socioeconomic development in the country, including the government-supported family planning program.

The high population growth of Indonesia in the past was caused by the high fertility level. As an agricultural-based economy and traditional society Indonesians preferred large families and high number of children. The results of the 1971 Population Census show Indonesia woman had between five and six children at the end of their reproductive age. In response to this high population growth and fertility rate, the government of Indonesia initiated family planning program by establishing the National Family Planning Coordinating Board in 1970 with the main purposes to reduce fertility level by half by 1990 and to improve maternal and child health. Together with increasing of woman education and participation in the labor market, the program was considered successful in bringing down the fertility to 2.34 children per woman in 2000 (Statistics Indonesia, 2011b). Family planning program is one part of competitiveness development within health and primary education pillar that has contributed to regional

economic growth and family welfare. Samosir et al. (2008) found that districts with higher contraceptive prevalence rate have higher regional economic growth and contraception families have higher welfare.

Broad and well-organized infrastructure has a significant role in assuring the economy's efficient implementation (Schwab & Sala-i-Martin, 2014). This kind of infrastructure is an essential element in selecting economic activity location and activity or sector that can expand in the country. Strong infrastructure diminishes the distance effect among areas, integrating the domestic market and linking it at low cost to marketplaces in other states and regions. Also, the infrastructure excellence and comprehensiveness considerably affect economic growth and alleviate income disparities and poverty in various means (Easterly, 2002). Electricity supply quality free from breakdowns also determines economies making business and factories to operate unobstructed. In addition, access to electricity at household level is important in increasing household economic productivity and regional economic growth.

In term of the overall infrastructure quality Indonesia ranked at the 72nd position with the quality of electricity supply ranked at the 84th. It means that Indonesia's infrastructure competitiveness is much lower than the world's average. Within the country households' access to electricity differs significantly among provinces (Figure 2). In 2015, almost all households (99.94%) in DKI Jakarta Province had access to electricity, but in East Nusa Tenggara Province and Papua Province, respectively, 74% and slightly above half households had access to it, making these two provinces much less competitive than others.

A healthy labor force is essential for country competitiveness and productivity. Unhealthy labors are less likely to perform their potential and to be productive. Consequently, weak health can cause notable costs to the economy because ill labors are more likely to be not present or function at lower levels of productivity in business. Investing in health services provision is important for strong economic and ethical issues. In addition, the basic education quantity and quality accepted by the population is gradually critical in present-day economy. Basic education improves the productivity of every individual worker. Lack of primary education can become a limitation on the economic development.

In term of health and primary education pillar Indonesia ranked at the 97th position by infant mortality rate, 94th - by life at birth, and the 85th - by primary education net enrollment ratio. It means that in terms of health and primary education pillar, Indonesia is much less competitive than the world's average. There is a wide gap in health competitiveness across provinces where, in 2010, the infant mortality rate ranged from lowest one - 14 infant deaths per 1,000 live births in Jakarta Provinces to the highest - 56 in Gorontalo Province (Figure 3). As the result, on average, people in Gorontalo Province live 11.5 years shorter than people in DKI Jakarta Province (Figure 4). The results of the 2010 Population Census show that the life expectancy at birth is shortest in Gorontalo Province (63.2 years) and longest in DKI Jakarta Province (74.7 years). This fact makes Gorontalo Province the least competitive province in term of health development in Indonesia.

In term of primary education, it can be seen that the net enrollment ratio increased between 2010 and 2015 (Figure 5). However, there are children who cannot enjoy primary education (3.3% nationally). In 2015, the net enrollment ratio was lowest in Papua Province (78,56) and highest in Yogyakarta Province (99,23), indicating that primary school population in Papua Province are about 35 times less likely to attend primary education than primary school population in Yogyakarta Province. Again, this makes Papua Province, being among geographically the hard to reach provinces in the eastern part of Indonesia, the least competitive province in term of primary education development.

The labor market efficiency and flexibility is important to assure workforces to be assigned to their greatest function in the market and to perform the greatest endeavor in their works (Schwab & Sala-i-Martin, 2014). Consequently, labor markets should have the flexibility to move labors from one market

Regional Competitiveness and National Economic Growth

Figure 2. The percentage of households with electricity as the source of light by province: Indonesia 2015

Source: Statistics Indonesia, Badan Pusat Statistik, n.d.; authors' own calculation

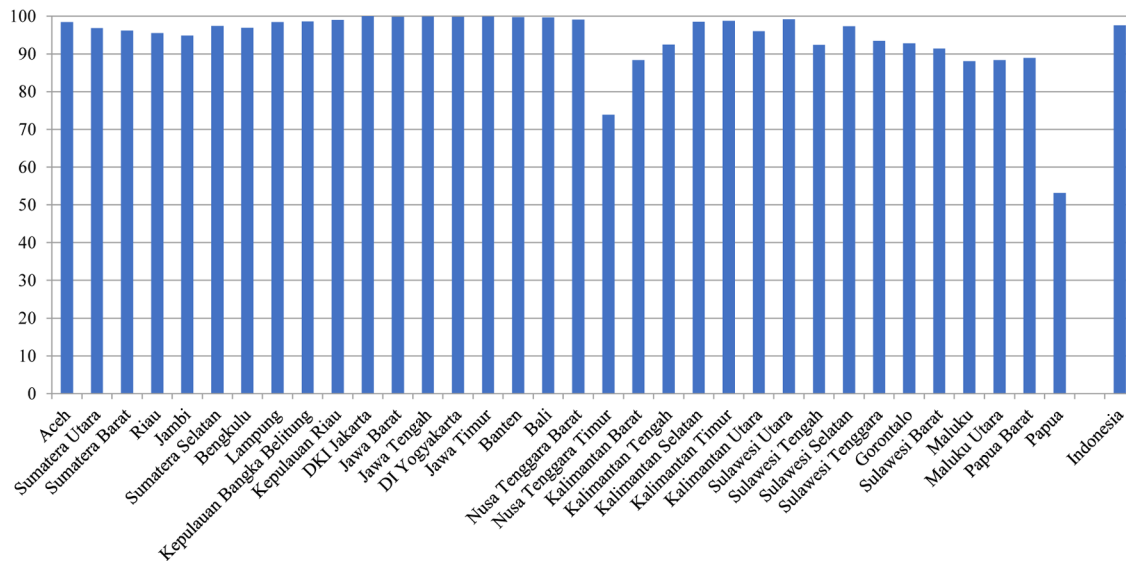


Figure 3. Infant mortality rate by province: Indonesia 2010 population census (infant deaths per 1,000 live births)

Source: Statistics Indonesia (2011a)

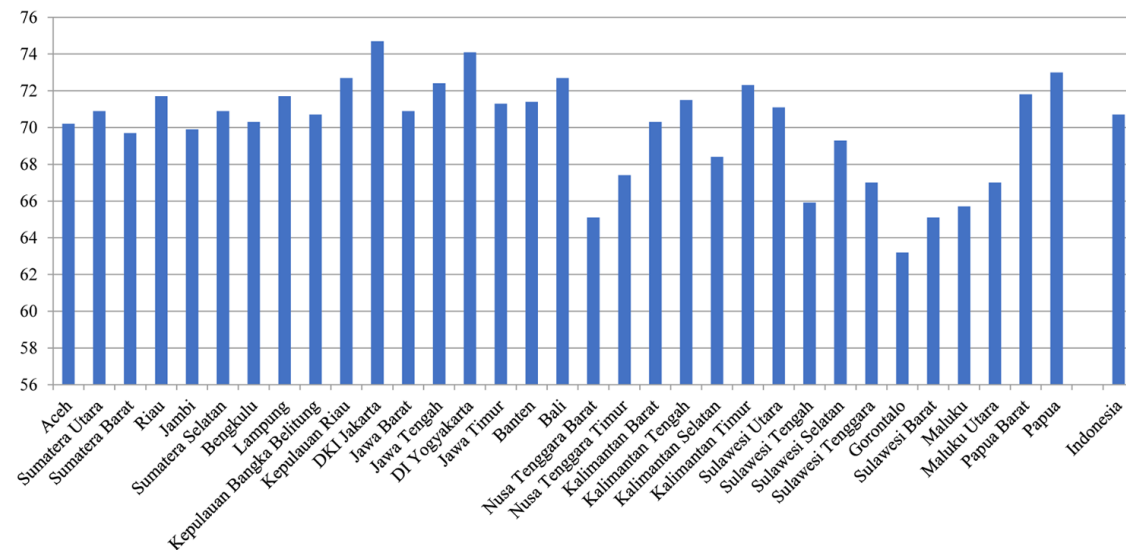


Figure 4. Life expectancy at birth by province: Indonesia 2010 population census (years)

Source: Statistics Indonesia (2011a)

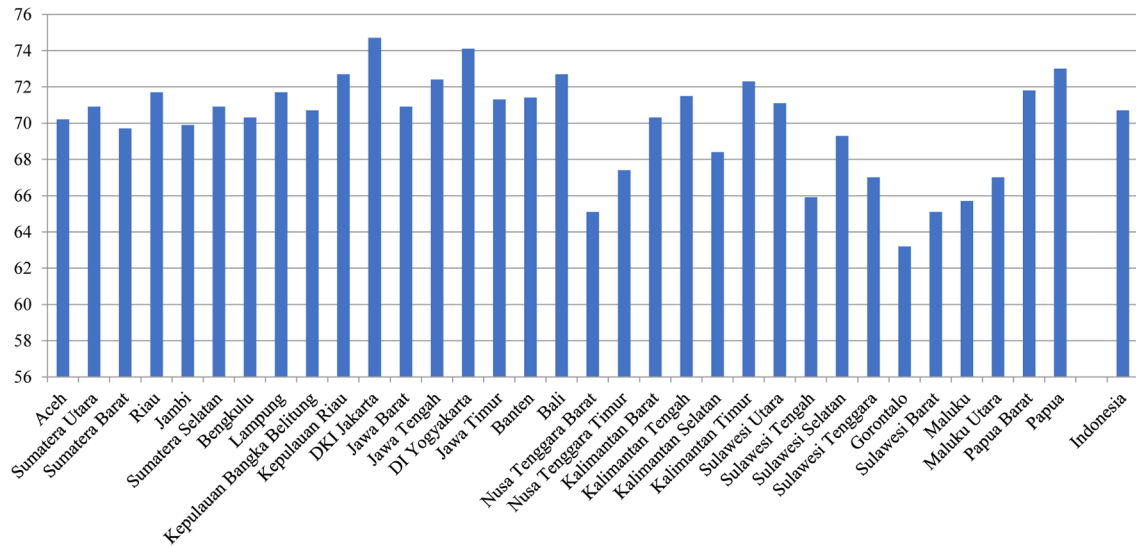
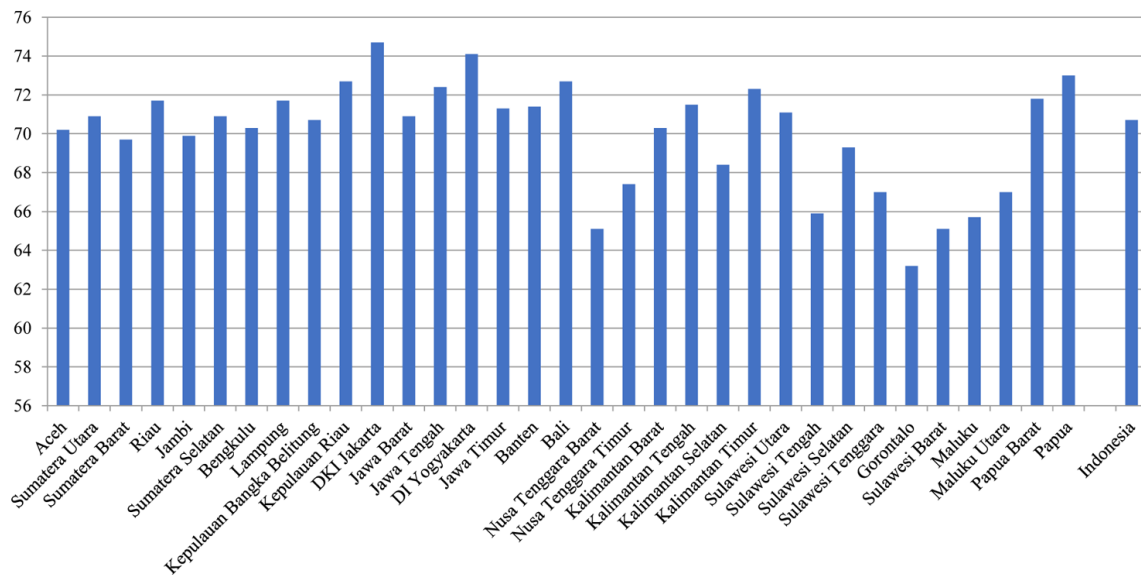


Figure 5. Primary education net enrollment ratio by province: Indonesia 2010 and 2015, %

Source: (Statistics Indonesia; Badan Pusat Statistik, n.d.)



to another quickly and cheaper, and to permit for income variations without considerable social disorder. Inflexible labor markets have been a notable reason for high youth unemployment in many countries where critical hindrances to access into the labor market persisted. Well-organized labor markets should also assure well-defined incentives for workers and offer equality between women and men. Well-organized labor markets have constructive effect on labor achievement and consequently regional economic growth.

Rigid labor markets are also an important cause of high youth unemployment in Indonesia that is relatively high with a significant variation across provinces. The results of the 2016 National Labor Survey (Statistics Indonesia, 2016a) show that, in August 2016, the national unemployment rate was 5.61% and was highest among youth age 15-19 years (28.1%), followed by age 20-24 years (15.8%). The unemployment rate among youth age 15-24 years was 19.4% (Figure 5). Youth unemployment rate was below than 10% in five provinces, between 10% and 20% - in 21 provinces. Lowest unemployment rate is in Bali Province (7.7%) and highest is in West Java Province (29.7%). Bali is one of famous tourist destinations in Indonesia with many tourism industries, in particular souvenirs manufacturing. This has been a great economic advantage for this province in term of flexible job opportunity including for the unskilled young labors. Meanwhile, high youth employment in West Java can be caused by the limited skills of young people to enter the service-dominated labor markets that need skillful workers.

Disparity in participation in the labor force is also notable between female and male labor force in Indonesia. Globally, Indonesia ranked at the 112th of 144 countries in term of equal access to the labor force for women and men, indicating Indonesia as much less competitive in this labor market efficiency aspect (Figure 7). The odds ratio of participating in the labor force between female and male labor force differs remarkably across provinces, ranging from 2.2 times less likely for female labor force in Bali Province to 7.8 times less likely for female labor force in Kalimantan Utara Province. This fact again implies that Bali Province has better labor market efficiency competency pillar than other provinces in

Figure 6. Youth unemployment rate by age group and province: Indonesia August 2016 National Labor Force Survey

Source: Statistics Indonesia (2016a), authors' own calculation

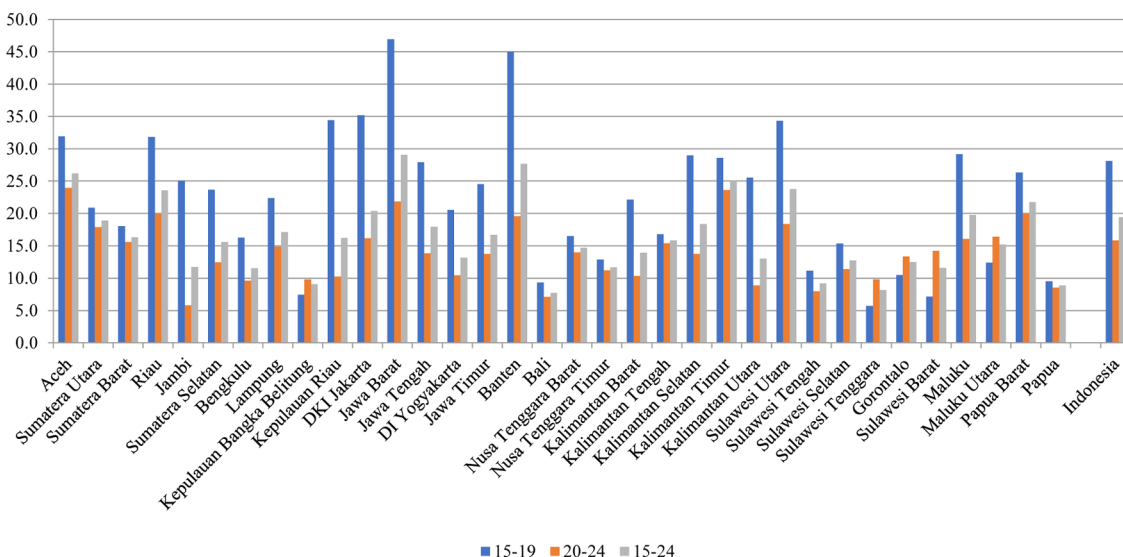
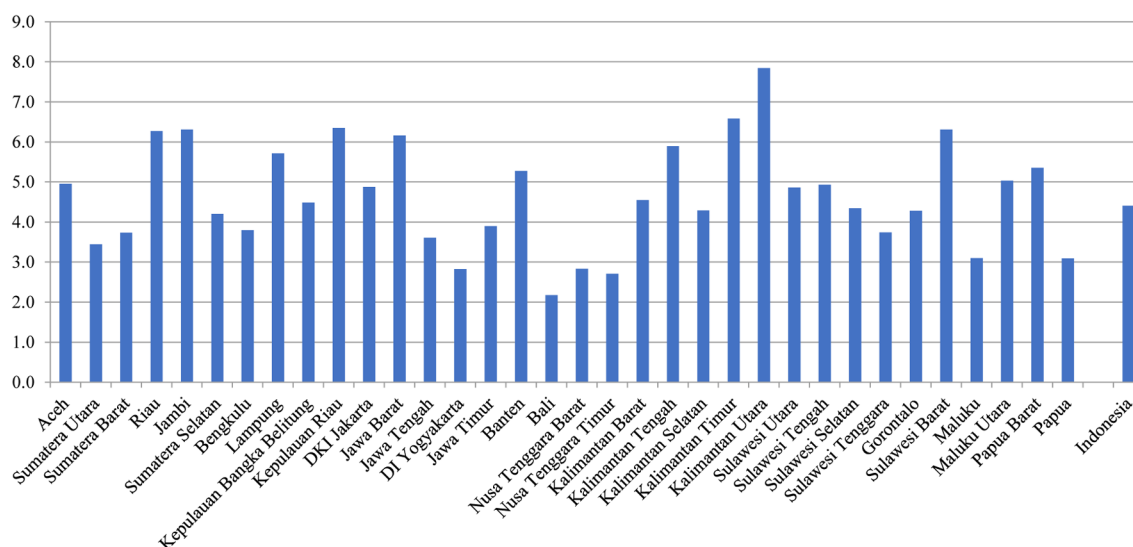


Figure 7. The odds ratio of participating in the labor force between female labor force and male labor force by province: Indonesia August 2016 National Labor Force Survey

Source: Statistics Indonesia (2016a), authors' own calculation



Indonesia. Indeed, Indonesia has to improve its labor market efficiency increasing the opportunity for female labor force to participate in the labor market in order to foster regional and national economic growth. It is particularly becoming increasingly more important as the number of children is declining and allowing mothers to participate in the economical life.

ECONOMIC INEQUALITY IN INDONESIA

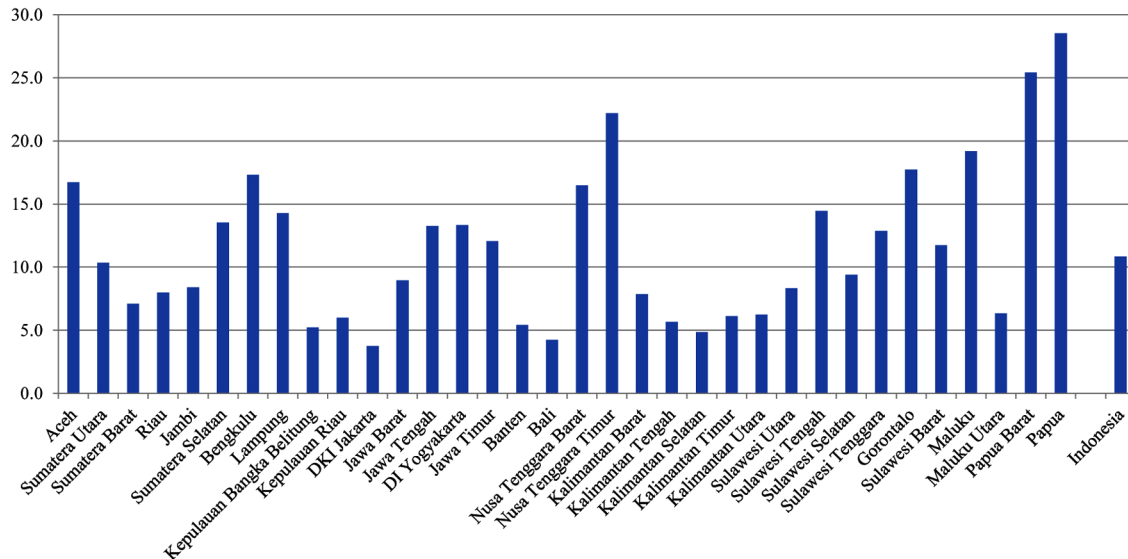
Indonesia is the country with great economic inequality. In term of poverty, as can be seen from Figure 8, the percentage of poor people, using national poverty line, was 10.86 (28.01 million people). It is lowest in Jakarta (3.75%) and highest in Papua Province (28.54%). It means that people in Papua are 10.3 times more likely to be poor than people in Jakarta. In addition, the percentage of poor people in 16 of 34 provinces in the country is higher than the percentage of poor people nationally. However, since the number of population is largest in West Java (18.3% of Indonesians), followed by in East Java (15.1% of Indonesians), and Central Java (13.1% of Indonesians), poor people are also concentrated in these three provinces, 4.7 million in East Java, 4.5 million in Central Java, and 4.2 million in West Java (Statistics Indonesia, 2016b). The government of Indonesia has considered that poverty is a serious problem and, in the National Medium Term Development Plan (RPJMN) 2015-2019, has set a target to reduce economic inequality by decreasing the percentage of poor people from 10.96% in 2014 to 7-8% in 2019 through the expansion of quality employment opportunity for the poor (Bappenas, 2014).

In term of income inequality, Indonesia is the country where the richest 1% of the population concentrates the highest proportion of resources (49% of total income) and the richest 10% possess 77% of total income (Shorrocks et al., 2016). In addition, the richest 20 percent of the population hold more than 46% of total expenditure, and the poorest 40% have the lowest fraction (17%). Within the country,

Regional Competitiveness and National Economic Growth

Figure 8. Percentage of Poor People by Province: Indonesia 2016

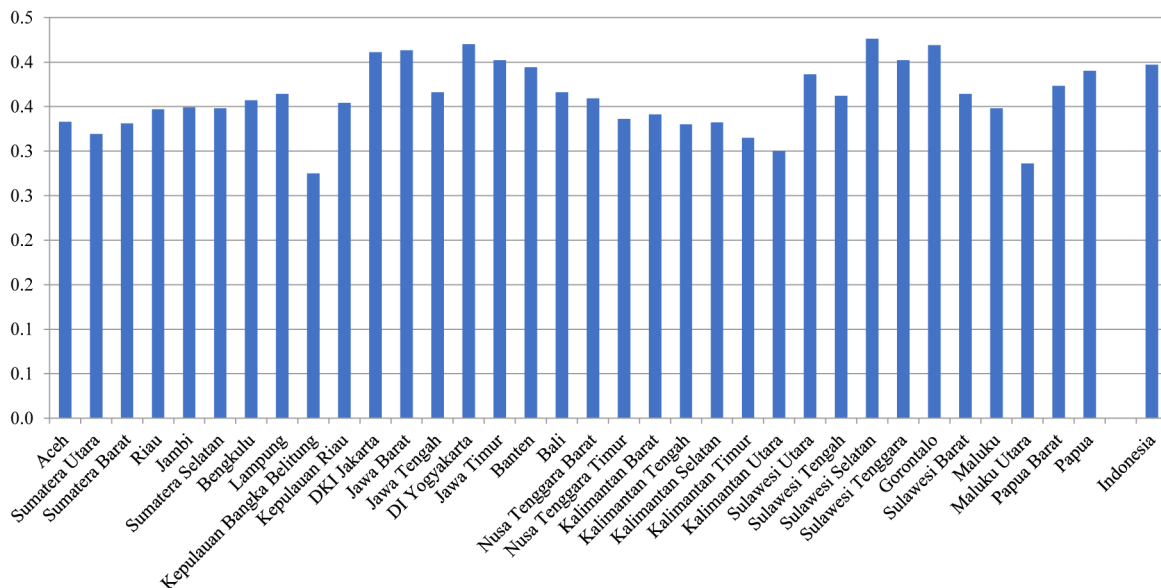
Source: Statistics Indonesia (2016b)



as can be seen from Figure 9, the Gini ratio varied from a lowest of 0.275 in Kepulauan Bangka Belitung Province to highest of 0.426 South Sulawesi Province (Statistics Indonesia, 2016b). Low Gini ratio in Kepulauan Bangka Belitung Province can be caused by better development equality. Meanwhile, in South Sulawesi Province, high Gini ratio might be caused by low consumption patterns among the poorest

Figure 9. Gini Ratio by Province: Indonesia 2016

Source: Statistics Indonesia (2016b)



and high consumption behaviour among the richest. The government of Indonesia has also considered that income inequalities can decelerate poverty alleviation and consequently economic growth in the country. Therefore, in the RPJMN 2015-2019, the government of Indonesia has set a target to reduce the Gini ratio from 0.41 in 2014 to 0.36 in 2019.

RESEARCH METHODS

This study used data from the Indonesia Database for Policy and Economic Research (INDO-DAPOER) of the World Bank. This data source consists of macroaggregate data for all districts in Indonesia of 219 development indicators. The study used cross section data of districts in Indonesia in 2010. We have to note that the capital, Jakarta, is not included in the analyses. The number of districts with available data for all variables included in the analyses is 471.

In this study the effect of competitiveness development (*Comdev*) and economic reforms (*Ecref*) on regional economic growth (*Y*) is examined using the econometric model as follows.

$$Y = f(Comdev, Ecref)$$

The available competitiveness variables are for infrastructure pillar (the percentage of households with electricity, stated as *Electric*), health and primary education pillar (percentage of births attended by skilled health worker, stated as *Birth*, and net enrollment ratio for primary education, stated as *Educ*), and labor market efficiency pillar (number of people employed, stated as *Labor*). The economic reforms variable is the total grants, stated as *Grants*, which is the total of total tax revenue sharing, total special allocation grants, total own source revenue, and total natural resource revenue sharing. The economic growth variable is the gross domestic product (GDP) excluding gas and oil at constant price in 2000, stated as *Y*.

The regression equation estimated is as follows.

$$\log(Y) = a_0 + a_1 Electric + a_2 Birth + a_3 Educ + a_4 \log(Labor) + a_5 \log(Grants)$$

a_0 is the intercept of the regression equation and a_1, a_2, a_3, a_4 , and a_5 is the regression coefficient for *Electric*, *Birth*, *Educ*, $\log(Labor)$, and $\log(Grants)$ respectively.

DISPARITIES IN COMPETITIVENESS, ECONOMIC REFORMS, AND REGIONAL ECONOMIC GROWTH

Disparities in competitiveness development across districts are evident in Indonesia. As it can be seen from Table 1, infrastructure development varies greatly among districts in Indonesia. In 2010, households with electricity in districts in Indonesia was 85.5% on average, ranged from a lowest of none in Kabupaten Deiyai and Kabupaten Memberamo Tengah, both in Papua Province, to the highest of 100% (universal) in Kabupaten Badung in Bali Province and in some other districts mostly in Java Island and in Kalimantan Island.

Table 1. Summary statistics of variables in the analyses

Variable	Obs	Mean	Std. Dev.	Min	Max
Percentage of households with electricity (<i>Electric</i>)	472	85.50	19.81	0	100.0
Percentage of births attended by skilled health worker (<i>Birth</i>)	472	74.48	21.06	2.9	100.0
Net enrolment ratio for primary education (<i>Educ</i>)	472	94.22	7.30	11.8	100.0
Number of people employed (Log(<i>Labor</i>))	472	5.09	0.46	3.4	6.3
Total grants (Log(<i>Grants</i>))	472	5.07	0.28	4.27	6.3
GDP (Log total GDP (<i>Y</i>))	472	6.54	0.56	4.6	8.3

Sources: World Bank (www.worldbank.org/en/INDODAPOER, authors' own calculation)

There is a significant gap in health and primary education development in Indonesia. In 2010, births attended by skilled health worker was 74.48% on average, lowest in Kabupaten Intan Jaya in Papua Province (2.9%) and universal (100%) in Kota Denpasar and Kabupaten Klungkung, both in Bali Province, and in some other provinces mostly in Java Island and in West Sumatera Province (Table 2). Meanwhile, the net enrolment ratio for primary education was 94.22% on average, varied from 11.8% in Kabupaten Nduga in Papua Province to 100% in Kota Surakarta in Central Java Province. The labor market efficiency is also unequal in Indonesia. The number of employed people is lowest in Kabupaten Tambrau in West Papua Province (2,793 from 6,145 people of local population) and highest in Kabupaten Bogor in West Java (1,722,345 from 5,132 million people of local population).

In 2010, the total tax revenue sharing varied across districts in Indonesia from none in Kabupaten Aceh Tengah in Aceh Province to a highest (Rp.761,055 million) in Kota Balikpapan in East Kalimantan Province. Meanwhile, the total special allocation grants was none in Kabupaten Aceh Tengah in Aceh Province and in some other provinces and highest (Rp.156,225 million) in Kabupaten Tangerang in West Java. Further, the total own source resources ranged from Rp.760.8 million in Kabupaten Tambrau in Papua Province to Rp.979,195 million in Kabupaten Badung in Bali Province. Furthermore, total natural resource revenue sharing varied from none in Kabupaten Aceh Tengah in Aceh Province and in some other districts and highest in Kabupaten Bengkalis in Riau Province (more than two trillion rupiah). Moreover, the total grants differed from Rp.18,535 million in Kabupaten Aceh Tengah in Aceh Province to Rp.1.7 trillion in Kota Surabaya in East Java Province. Additionally, the gross domestic product (GDP) excluding gas and oil at constant price ranged from Rp.18,460 million in Kabupaten Tambrau in Papua Province to Rp.87.8 trillion in Kota Surabaya in East Java Province and GDP excluding gas and oil at current price ranged from Rp.40,690 million in Kabupaten Tambrau in Papua Province to Rp.205.2 trillion in Kota Surabaya in East Java Province.

COMPETITIVENESS AND REGIONAL ECONOMIC GROWTH

The results of bivariate analyses between competitiveness development and regional economic growth are presented in Figure 10 – 13. It can be seen that competitiveness development can promote regional economic growth. Figure 10 – 13 show that the percentage of households with electricity, the percentage of births attended by skilled health worker, the net enrollment ratio for primary education, and the number of employed people each has positive relationship with regional economic growth. In 2010, 1%

Table 2. Districts with lowest and highest value for competitiveness development and economic reforms variables in the analyses: Indonesia 2010

No.	Variable	Lowest	Highest
1.	Percentage of households with electricity (<i>Electric</i>)	Kabupaten Deiyai, Kabupaten Memberamo Tengah (0%)	Kabupaten Badung, Cirebon, Kabupaten Klaten, Madiun, Kabupaten Mojokerto, Pontianak, Salatiga, Kabupaten Sukoharjo (100%)
2.	Percentage of births attended by skilled health worker (<i>Birth</i>)	Kabupaten Intan Jaya (2.9%)	Denpasar, Kabupaten Klungkung, Madiun, Magelang, Kabupaten Magetan, Mojokerto, Padang Panjang, Payakumbuh, Surakarta (100%)
3.	Net Enrollment Ratio for primary education (in %)	Kabupaten Nduga (11.8%)	Surakarta (100%)
4.	Number of people employed	Kabupaten Tambrauw (2,793)	Kabupaten Bogor (1,722,345)
5.	Total of tax revenue sharing (in million rupiah)	Kabupaten Aceh Tengah, Kabupaten Jepara, Kabupaten Sampang (0)	Balikpapan (761,055.3)
6.	Total special allocation grants (in million rupiah)	Kabupaten Aceh Tengah, Kabupaten Cilegon, Kabupaten Jepara, Kabupaten Ogan Komering Ulu, Kabupaten Sampang, Kabupaten Tanjung Jabung Barat, Tarakan (0)	Kabupaten Tangerang (156,225)
7.	Total own source revenue (in million rupiah)	Kabupaten Tambrauw (760,8)	Kabupaten Badung (979,194.6)
8.	Total natural resource revenue sharing (in million rupiah)	Kabupaten Aceh Tengah, Kabupaten Asmat, Balikpapan, Kabupaten Bangkalan, Kabupaten Bantul, Kabupaten Bener Meriah, Kabupaten Cilacap, Kabupaten Dharma Raya, Kabupaten Enrekang, Kabupaten Jeneponto, Kabupaten Jepara, Manado, Kabupaten Mesuji, Kabupaten Muna, Kabupaten Nias Barat, Kabupaten Pacitan, Kabupaten Padang Panjang, Kabupaten Parigi Moutong, Kabupaten Pasuruan, Kabupaten Sampang, Kabupaten Seluma, Kabupaten Tasikmalaya, Kabupaten Temanggung (0)	Kabupaten Bengkalis (2,068,755.4)
9.	Total grants (in million Rp.)	Kabupaten Aceh Tengah (18,535.2)	Surabaya (1,695,093.5)
10.	GDP excluding gas and oil at constant price (in million Rp)	Kabupaten Tambrauw (18,460)	Surabaya (87,288,840)
11.	GDP excluding gas and oil at current price (in million Rp)	Kabupaten Tambrauw (40,690)	Surabaya (205,161,470)

Sources: World Bank, www.worldbank.org/en/INDODAPOER

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Figure 10. Percentage of households with electricity and regional gross domestic product (GDP) Excluding Gas and Oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, Authors' own calculation

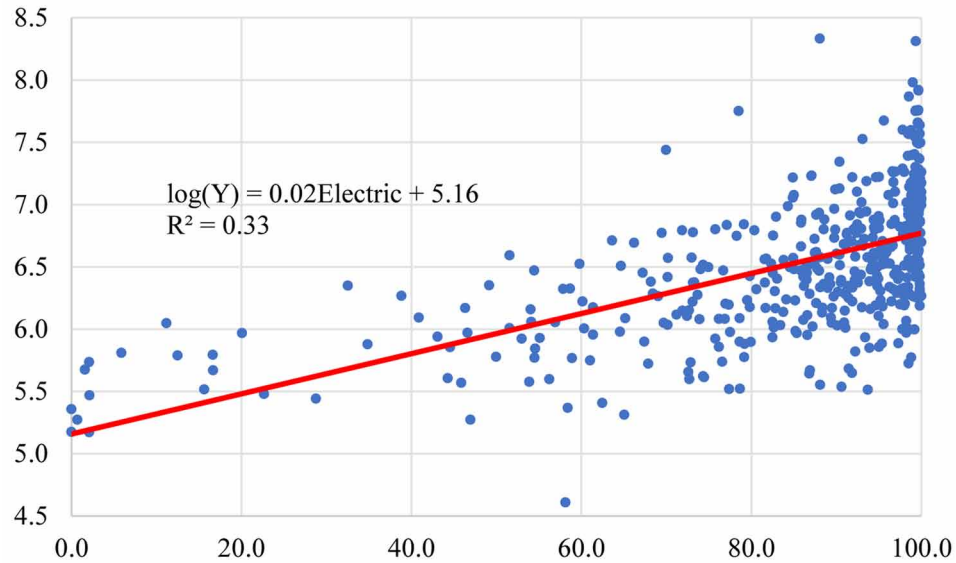


Figure 11. Percentage of Births attended by skilled health worker and regional gross domestic product (GDP) excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, Authors' own calculation

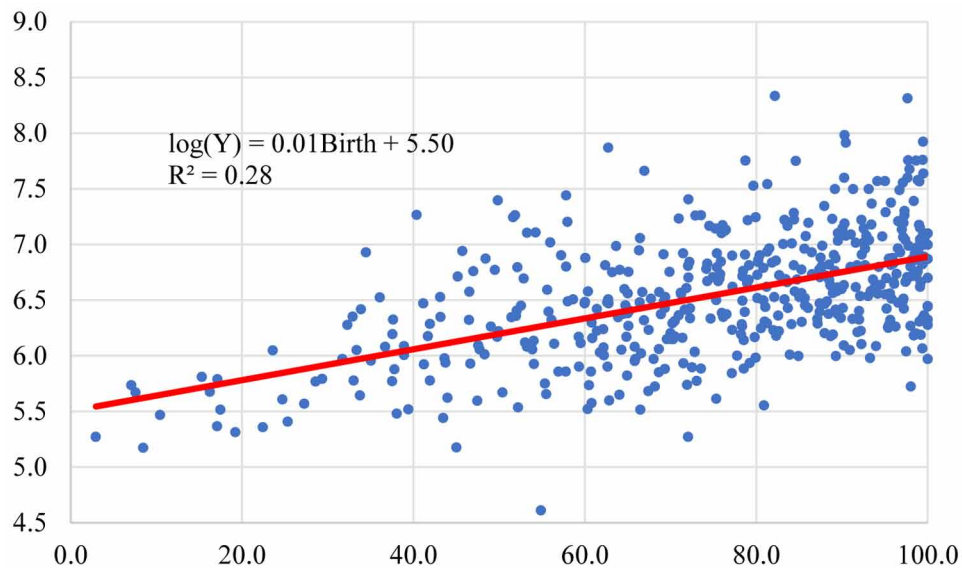


Figure 12. Net enrollment ratio for primary education and regional gross domestic product (GDP) Excluding Gas and Oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, Authors' own calculation

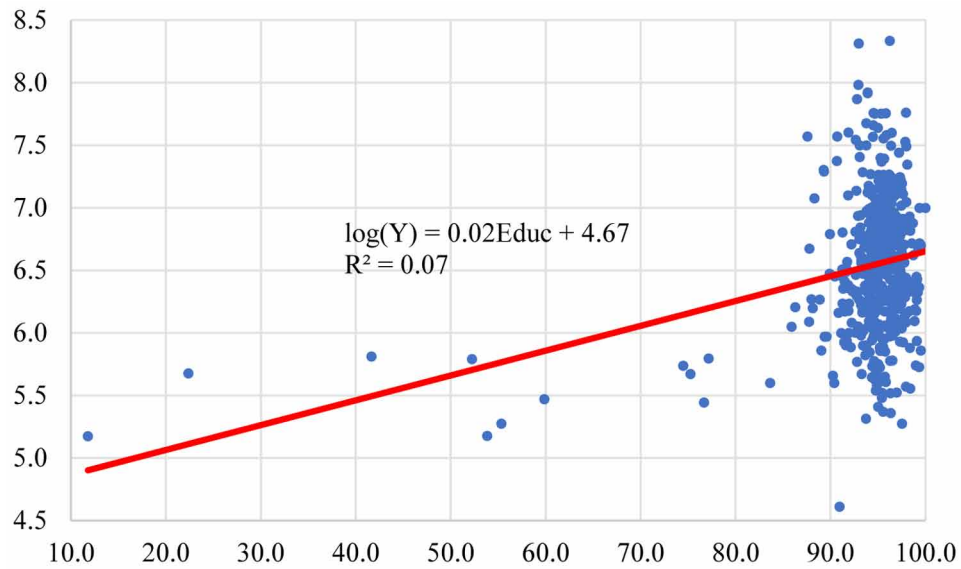
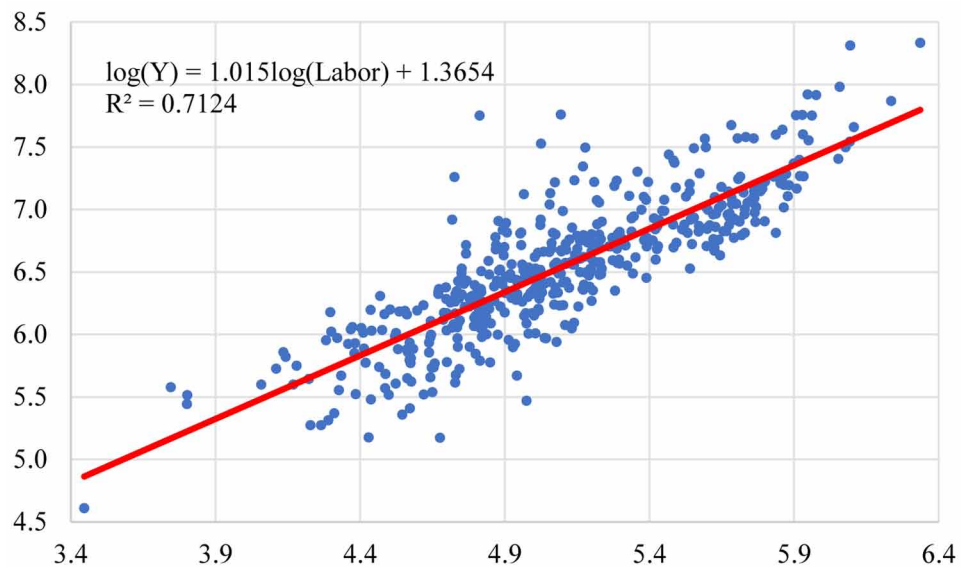


Figure 13. Number of people employed and regional gross domestic product (GDP) excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, Authors' own calculation



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increase in the percentage of households with electricity, 1% increase in the percentage of births attended by skilled health worker, 1% increase in the net enrollment ratio for primary education, and 1% increase in the number of employed people will, respectively, cause an increase in regional economic growth of 0.02%, 0.01%, 0.02%, and 1.015%. It can also be seen that the number of employed people has the strongest effect on regional economic growth (highest coefficient of variation of 0.7124), indicating that regional governments should capitalize the labor force in their region in order to increase their regional economic growth.

ECONOMIC REFORMS AND REGIONAL ECONOMIC GROWTH

The results of bivariate analyses between economic reforms and regional economic growth are presented in Figure 14 – 18. It is obvious that economic reforms can foster regional economic growth. Figure 14 – 18 indicate that the total tax revenue sharing, total special allocation grants, total own source resources, total natural resource revenue sharing, and total grants each has positive impact on regional economic growth. In 2010, 1% increase in total of tax revenue sharing, 1% increase in total special allocation grants, 1% increase in total own source resources, 1% increase in total natural resource revenue sharing, and 1% increase in total grants will, respectively, caused an increase in regional economic growth of 1.07%, 0.15%, 0.93%, 0.099%, and 1.54%. It can also be seen that the total own resources has the strongest impact on regional economic growth (highest coefficient of variation of 0.67), implying that regional governments should improve their total own resources in order to advance their regional economic growth.

Figure 14. Total tax revenue sharing and regional gross domestic product (GDP) Excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, authors' own calculation

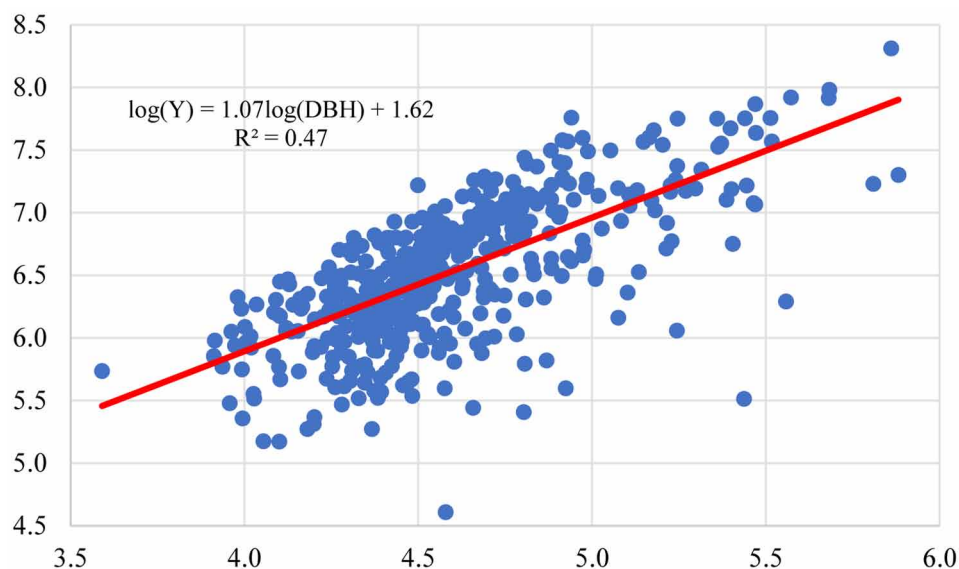


Figure 15. Total special allocation grants and regional gross domestic product (GDP) excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, authors' own calculation

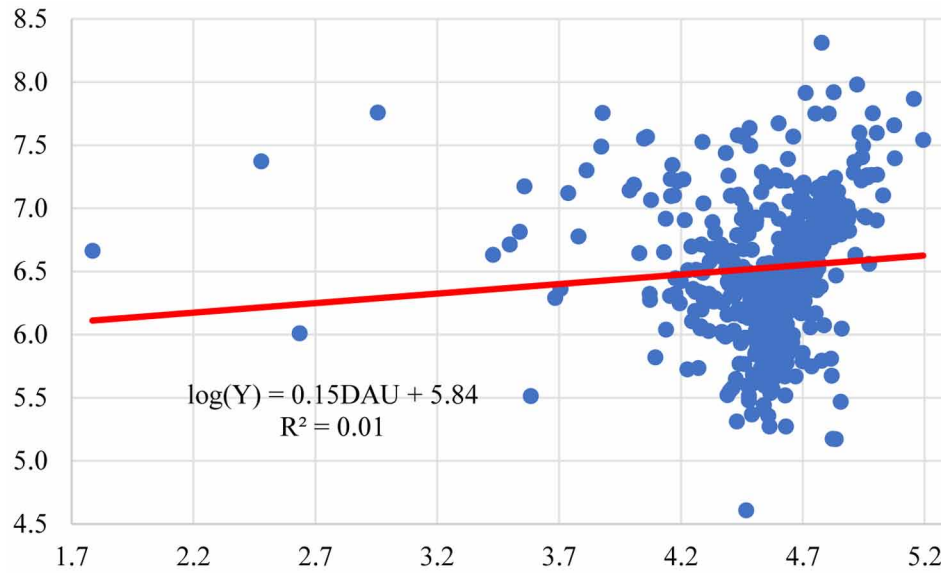
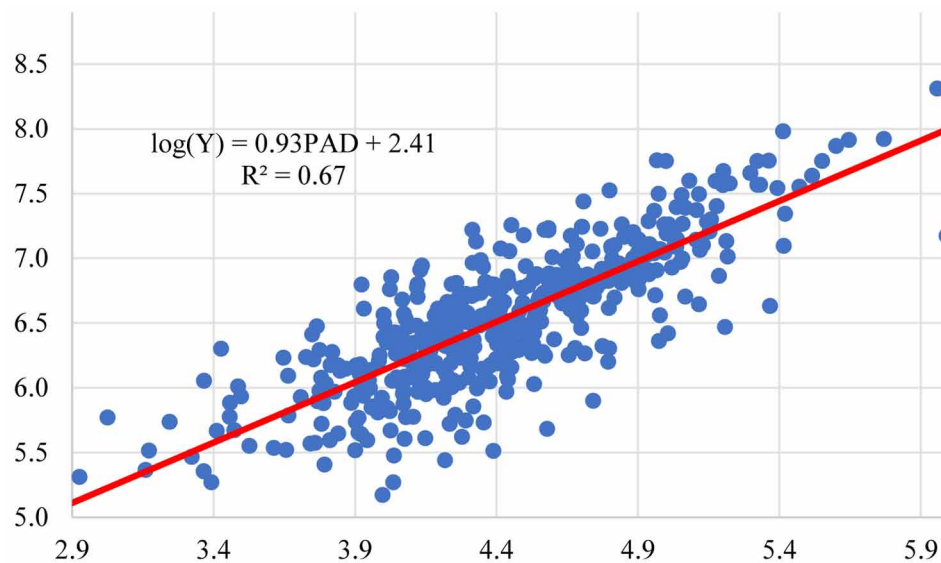


Figure 16. Total own source resources and regional gross domestic product (GDP) excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, authors' own calculation



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Figure 17. Total natural resources revenue sharing and regional gross domestic product (GDP) Excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, authors' own calculation

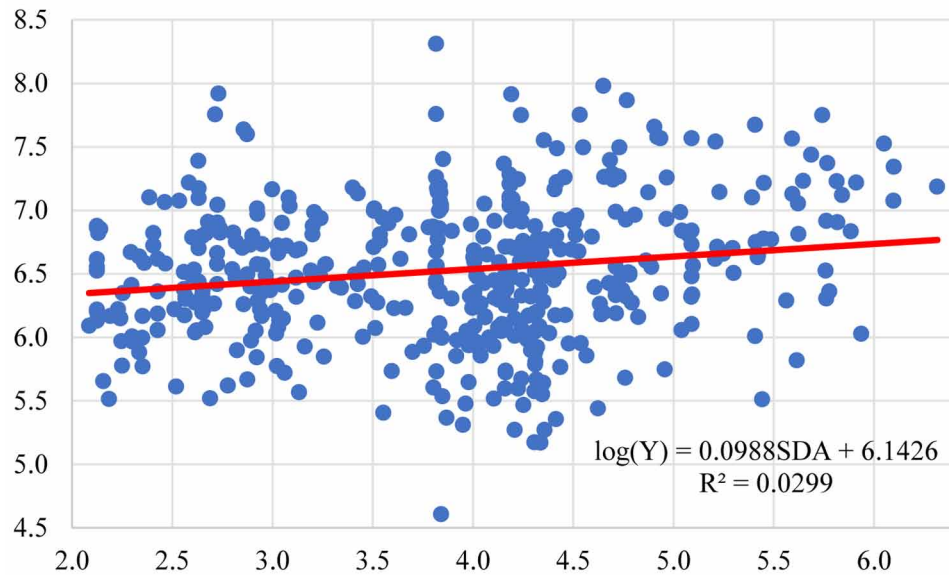
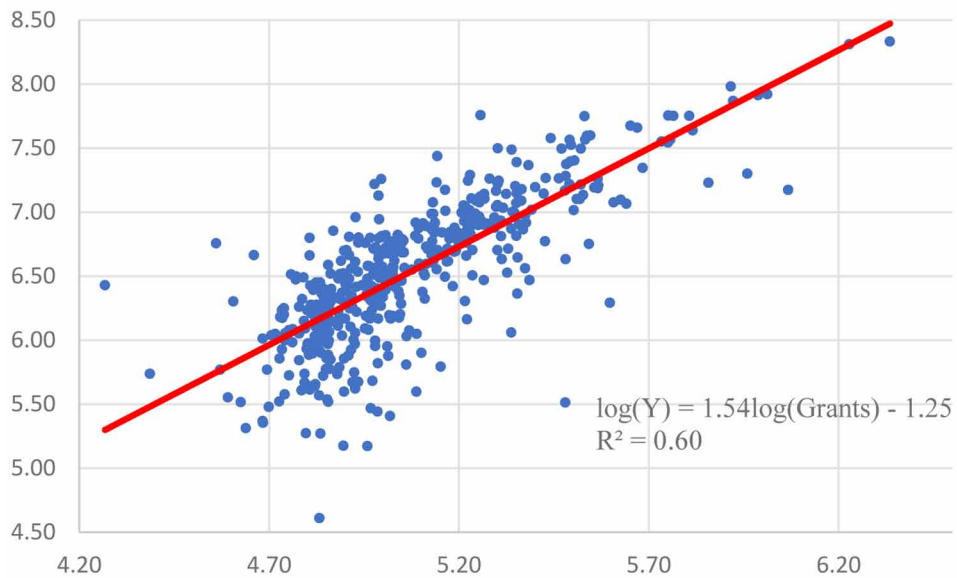


Figure 18. Total grants and regional gross domestic product (GDP) excluding gas and oil: Indonesia 2010

Sources: World Bank, www.worldbank.org/en/INDODAPOER, authors' own calculation



THE IMPACT OF COMPETITIVENESS AND ECONOMIC REFORMS ON REGIONAL ECONOMIC GROWTH

The results of fit test show that the regression model between competitiveness development and economic reforms and regional economic growth is fit with the statistic $F(5, 465) = 561.8$, significance $F = 0.000$ and coefficient of determination, $R^2 = 0.858$. It implies that 86% of the variation in regional economic growth in Indonesia can be explained by competitiveness development and economic reforms achievement.

The regression coefficients, standard error, t -statistic, and p -value for the multiple regression model for the effects of competitiveness and economic reforms on regional economic growth in Indonesia are presented in Table 3. It can be seen that the percentage of households with electricity, percentage of births attended by skilled health worker, net enrollment ratio for primary education, number of people employed, and total grants statistically have significant effect on regional economic growth.

The percentage of households with electricity has positive relationship with regional economic growth. Other things being the same, a one percent increase in households with electricity will increase regional economic growth for 0.004%. This result confirms the importance of access to electricity on regional economic growth as found in other studies in Sri Lanka (Morimoto & Hope, 2001), Bangladesh (Masuduzzaman, 2013), and Poland (Kasperowicz, 2014). Household access to electricity is crucial for individual and household productive activities, in particular economic activities, than can contribute to regional economic growth.

The percentage of births attended by skilled health worker affects regional economic growth positively. After controlling other factors, a one percent increase in births attended by skilled health worker will cause regional economy growing by 0.0030%. This result supports the theory and results of previous studies on the significance of health on economic growth (e.g. Bloom et al., 2001). Access to births attended by skilled health worker is a key to mother and children health and survival by reducing socioeconomic costs of maternal and child mortality and therefore improving general population health and increasing workers' productivity and regional economic growth. It is particularly important for Indonesia where the maternal mortality ratio is relatively high, 305 maternal deaths per 100,000 live births (Statistics Indonesia, 2016), and therefore improving access to births attended by skilled health worker is an important health competitiveness development agenda.

The net enrollment ratio for primary education is positively related to regional economic growth. Other things being the same, a one percent increase in the net enrollment ratio for primary education will increase regional economic growth as much as 0.0032%. This result verifies the importance of human development in particular through education on economic growth (e.g. Hanushek & Woessmann, 2010). Basic education is an important investment for competitive future labors and higher economic growth.

The number of employed people has positive impact on regional economic growth. After controlling for other factors, a one percent increase in the number of people employed will cause regional economy growing by 0.6322%. In addition, the number of people employed is the strongest factor that affects regional economic growth (with a largest t -statistic). This result supports that higher labor force participation is important for higher economic growth, with greater impacts on economic performance within flexible labor markets (e.g. Almeida & Carneiro, 2009).

Regional Competitiveness and National Economic Growth

The total grants (economic decentralization), as economic reforms variable in this study, influences regional economic growth positively. Other things being the same, a one percent increase in the total grants will increase regional economic growth by 0.5843%. Also, the total grants is the second strongest factor affecting regional economic growth (with a second largest *t*-statistic). This result endorses findings by Bashar and Khan (2012) and Klein and Palanivel (2000) that economic reforms, such as tariff reduction, elimination of high regulation levels, devaluation of national currency, and economic decentralization can improve economic performance and subsequently economic growth.

CONCLUSION

The results of study confirm an importance of competitiveness development and economic reforms (economic decentralization) on regional economic growth in Indonesia. Districts with higher percentage of households with electricity, higher percentage of births attended by skilled health worker, higher net enrollment ratio for primary education, higher number of people employed, and higher total grants are found to have higher regional economic growth. Based on these findings, it is recommended that regional governments in Indonesia should improve their infrastructure, health, primary education, and labor force development, as well as the total own source revenue in their regions. Districts that are lagged far behind in competitiveness development, in particular those districts in the central part and eastern part of Indonesia, such as in East Nusa Tenggara, Papua Province and Papua Barat Province, should be given special attention by the central government by giving much greater total grants for competitiveness development in order to spur regional economic growth in these districts and consequently to reduce development inequality across districts and promote national economic growth rate in Indonesia. As an island country, transportation infrastructure has been the main problem for lagged districts in Indonesia to develop their competitiveness. The current President of Indonesia, Joko Widodo, is committed to improve competitiveness development in the central and eastern regions of Indonesia through the sea toll road project by building seaports and airports so that these lagged regions can be connected to the more developed regions of Indonesia.

Table 3. Regression coefficient, standard error, t-statistic, and p-value for the multiple regression model for the effects of competitiveness and economic reforms on regional economic growth (GDP excluding gas and oil at constant price):Indonesia 2010

Covariates	Coefficient	Standard Error	<i>t</i> -statistic	<i>p</i> -value ¹
Percentage of households with electricity (<i>Electric</i>)	0.0042	0.0008	5.00	0.000
Percentage of births attended by skilled health worker (<i>Birth</i>)	0.0030	0.0007	4.27	0.000
Net enrolment ratio for primary education (<i>Educ</i>)	0.0032	0.0016	2.03	0.042
Number of people employed (Log(<i>Labor</i>))	0.6322	0.0289	21.86	0.000
Total grants (Log(<i>Grants</i>))	0.5843	0.0477	12.25	0.000
Constants ¹	-0.8838	0.2339	-3.78	0.002

Sources: World Bank, www.worldbank.org/en/INDODAPOER, authors' own calculation

Due to data limitation, only the effects of three of 12 pillars of competitiveness (infrastructure, health and education, and labor market efficiency) are examined in this study. In addition, cross-sectional data were used in the analysis because the number of districts in Indonesia was changing from year to year as the results of district expansion. If the data for the percentage of households with electricity, percentage of births attended by skilled health worker, net enrollment ratio for primary education, number of people employed, and total grants in 2010 and for GDP in 2012 were used, the expanded districts in 2012 would be different from the districts in 2010. Therefore, for further study, it is suggested to assess the effects of other pillars of competitiveness (institutions, macroeconomic environment, higher education and training, goods market efficiency, financial market development, technological readiness, business sophistication, and innovation) on economic growth and to use more recent panel data at province level which are usually more available.

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KEY TERMS AND DEFINITIONS

Bappenas: Indonesian national development planning agency.

DAK: Special allocation grants, actively using in Indonesia.

G-20: An international forum for the governments and central bank governors from 20 major economies.

Gini Ratio: A measure of the income distribution in a region.

Infant Mortality Rate: Infant deaths per 1,000 live births.

Life Expectancy at Birth: The average number of years a newborn is expected to live if mortality patterns at the time of its birth remain constant in the future.

Rp: Rupiah (Indonesia's currency).